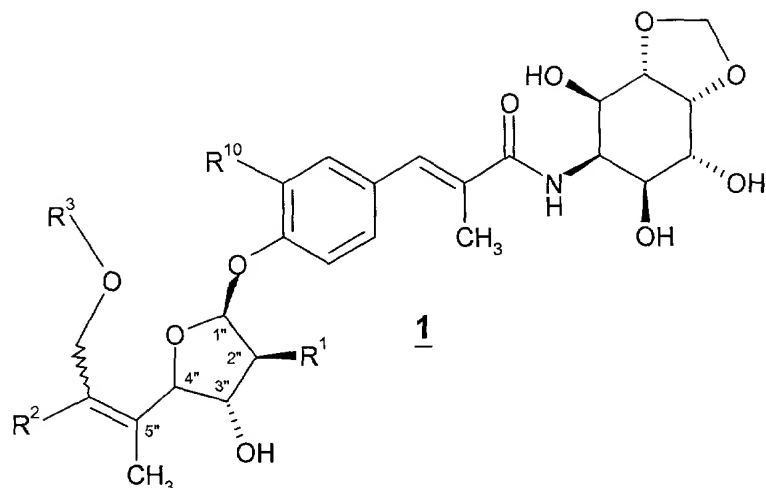


# CLAIMS

1. A compound of the formula



5 or a pharmaceutically acceptable prodrug, salt or solvate thereof wherein:

each R<sup>1</sup> and R<sup>10</sup> is independently H or OH;

R<sup>2</sup> is H or C<sub>1</sub>-C<sub>6</sub> alkyl wherein the foregoing R<sup>2</sup> alkyl group is optionally substituted by 1 or 2 R<sup>4</sup> groups;

each R<sup>3</sup> is independently selected from C<sub>6</sub>-C<sub>10</sub> aryl or 5 to 10 membered heteroaromatic, and the heteroaromatic and aryl moieties of the foregoing R<sup>3</sup> groups are substituted by a -CHR<sup>9</sup>NR<sup>11</sup>R<sup>12</sup> group and optionally substituted by 1 to 4 R<sup>4</sup> groups;

each R<sup>4</sup> is independently selected from, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, halo, cyano, nitro, trifluoromethyl, difluoromethyl, trifluoromethoxy, azido, hydroxy, C<sub>1</sub>-C<sub>6</sub> alkoxy, -C(O)R<sup>5</sup>, -C(O)OR<sup>5</sup>, -NR<sup>6</sup>C(O)OR<sup>8</sup>, -OC(O)R<sup>5</sup>, -NR<sup>6</sup>SO<sub>2</sub>R<sup>8</sup>, -SO<sub>2</sub>NR<sup>5</sup>R<sup>6</sup>, -NR<sup>6</sup>C(O)R<sup>5</sup>, -C(O)NR<sup>5</sup>R<sup>6</sup>, -NR<sup>5</sup>R<sup>6</sup>, -S(O)<sub>j</sub>(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -S(O)<sub>j</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -O(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -NR<sup>6</sup>(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(4 to 10 membered heterocyclic), -C(O)(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -C(O)(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(4 to 10 membered heterocyclic), wherein m is an integer from 0 to 4; j is an integer from 0 to 2, and said alkyl, alkenyl, alkynyl, aryl and heterocyclic moieties of the foregoing R<sup>4</sup> groups are optionally substituted by 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido, -NR<sup>6</sup>SO<sub>2</sub>R<sup>8</sup>, -SO<sub>2</sub>NR<sup>5</sup>R<sup>6</sup>, -C(O)R<sup>5</sup>, -C(O)OR<sup>5</sup>, -OC(O)R<sup>5</sup>, -NR<sup>6</sup>C(O)OR<sup>8</sup>, -NR<sup>6</sup>C(O)R<sup>5</sup>, -C(O)NR<sup>5</sup>R<sup>6</sup>, -NR<sup>5</sup>R<sup>6</sup>, -OR<sup>5</sup>, C<sub>1</sub>-C<sub>10</sub> alkyl, -(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(4 to 10 membered heterocyclic), wherein m is an integer from 0 to 4;

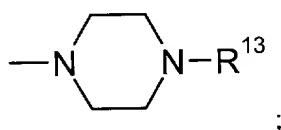
each R<sup>5</sup>, R<sup>9</sup>, R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup> and R<sup>14</sup> is independently selected from H, C<sub>1</sub>-C<sub>10</sub> alkyl, -(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(C<sub>3</sub>-C<sub>10</sub> cycloalkyl), indanyl and -(CR<sup>6</sup>R<sup>7</sup>)<sub>m</sub>(4 to 10 membered heterocyclic), wherein m is an integer from 0 to 4, and the foregoing R<sup>5</sup>, R<sup>11</sup>, R<sup>9</sup> and R<sup>12</sup>

substituents, except H, are optionally substituted by 1 to 3 substituents independently selected from halo, cyano, nitro, benzyl, trifluoromethyl, trifluoromethoxy, azido,  $-\text{CH}_2(\text{C}_2\text{-C}_6\text{ alkenyl})$ ,  $-\text{C}(\text{O})\text{R}^6$ ,  $-\text{C}(\text{O})\text{OR}^6$ ,  $-\text{OC}(\text{O})\text{R}^6$ ,  $-\text{NR}^6\text{C}(\text{O})\text{R}^7$ ,  $-\text{C}(\text{O})\text{NR}^6\text{R}^7$ ,  $-\text{NR}^6\text{R}^7$ , hydroxy,  $\text{C}_1\text{-C}_6$  alkyl, and  $\text{C}_1\text{-C}_6$  alkoxy;

- 5 or  $\text{R}^{11}$  and  $\text{R}^{12}$  can be taken together to form a 4 to 7 membered heterocyclic group optionally substituted by one  $\text{R}^{14}$  group;

each  $\text{R}^6$  and  $\text{R}^7$  is independently selected from H,  $-\text{C}(\text{O})(\text{C}_1\text{-C}_6\text{ alkyl})$ ,  $\text{C}_1\text{-C}_6$  alkyl or  $-(\text{CH}_2)_n(\text{C}_6\text{-C}_{10}\text{ aryl})$  wherein n is an integer from 0 to 2, and the foregoing aryl substituents are optionally substituted by 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, and azido;

$-\text{NR}^6\text{R}^7$  can be taken together to form the following structure



each  $\text{R}^8$  is selected from the substituents provided in the definition of  $\text{R}^5$  except  $\text{R}^8$  is not H.

- 15 2. A compound according to claim 1 include those wherein  $\text{R}^3$  is phenyl substituted by one  $-\text{CH}_2\text{NR}^{11}\text{R}^{12}$  group and optionally substituted by 1 to 4  $\text{R}^4$  groups.

3. A compound according to claim 2 wherein said  $\text{R}^{11}$  and  $\text{R}^{12}$  groups are independently selected from  $\text{C}_1\text{-C}_{10}$  alkyl,  $-(\text{CR}^6\text{R}^7)_m(\text{C}_6\text{-C}_{10}\text{ aryl})$ ,  $-(\text{CR}^6\text{R}^7)_m(\text{C}_3\text{-C}_{10}\text{ cycloalkyl})$ , indanyl and  $-(\text{CR}^6\text{R}^7)_m(4\text{ to }10\text{ membered heterocyclic})$ , wherein m is an integer from 0 to 4, and the foregoing,  $\text{R}^{11}$  and  $\text{R}^{12}$  substituents, are optionally substituted by 1 to 3 substituents independently selected from halo, benzyl, trifluoromethyl, trifluoromethoxy,  $-\text{NR}^6\text{R}^7$ .

4. A compound according to claim 1 wherein one of the  $\text{R}^4$  groups is halo and ortho to the ether oxygen.

5. A compound according to claim 4 wherein said halo group is chlorine.

- 25 6. A compound according to claim 1 wherein said compound is selected from the group consisting of:

3-(4-((2S,3S,4S,5R)-5-[3-(2-chloro-4-[(methyl-naphthalen-1-ylmethyl-amino)-methyl]-phenoxy)-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy)-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

3-(4-((2S,3S,4S,5R)-5-[3-(4-benzylaminomethyl-2-chloro-phenoxy)-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy)-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

3-(4-{{(2S,4S,5R)-5-[3-(4-{{Benzyl-(2-dimethylamino-ethyl)-amino}-methyl)-2-chloro-phenoxy)-1-methyl-(1E)-propenyl]-4-hydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-acrylamide

5 3-(4-{{(2S,3S,4S,5R)-5-[3-(2,3-Dichloro-4-{{(3-dimethylamino-propyl)-ethyl-amino}-methyl)-phenoxy)-1-methyl-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-acrylamide

10 3-(4-{{(2S,3S,4S,5R)-5-[3-(4-(3-chloro-benzyl)aminomethyl-2-chloro-phenoxy)-1-methyl-(1Z)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

3-(4-{{(2S,3S,4S,5R)-5-[3-(4-ethylamino-2-chloro-phenoxy)-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

15 3-(4-{{(2S,3S,4S,5R)-5-[3-(3-piperidinyl-2-chloro-phenoxy)-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

3-(4-{{(2S,3S,4S,5R)-5-[3-(4-benzylaminomethyl-2-chloro-phenoxy)-1-methyl-(1E)-propenyl]-4-hydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

20 3-(4-{{(2S,3S,4S,5R)-5-[3-{2-chloro-4-{{(benzyl-methyl-amino)-methyl}-phenoxy}-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

3-(4-{{(2S,3S,4S,5R)-5-[3-{2-chloro-4-{{(ethyl-methyl-amino)-methyl}-phenoxy}-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

25 3-(4-{{(2S,3S,4S,5R)-5-[3-{2-chloro-4-morpholin-4ylmethyl-phenoxy}-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-3-hydroxy-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

30 3-(4-{{(2S,3S,4S,5R)-5-[3-(4-(3-chloro-benzyl)aminomethyl-2-chloro-phenoxy)-1-methyl-(1E)-propenyl]-3,4-dihydroxy-tetrahydro-furan-2-yloxy}-phenyl)-2-methyl-N-((3aS,4R,5R,6S,7R,7aR)-4,6,7-trihydroxy-hexahydro-benzo[1,3]dioxol-5-yl)-(2E)-acrylamide;

and the pharmaceutically acceptable salts, prodrugs and solvates of said compounds.

7. A pharmaceutical composition for the treatment of a bacterial infection, a  
35 protozoal infection, or a disorder related to a bacterial infection or a protozoal infection, in a

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mammal, fish, or bird which comprises a therapeutically effective amount of a compound of claim 1 and a pharmaceutically acceptable carrier.

8. A method of treating a bacterial infection, a protozoal infection, or a disorder related to a bacterial infection or a protozoal infection, in a mammal, fish, or bird which comprises administering to said mammal, fish or bird a therapeutically effective amount of a compound of claim 1.

Patented Dec 22, 2010